REMARKS/ARGUMENTS

Reconsideration of the application is requested.

Claims 1-23 remain in the application. Claims 1, 4, 12-13, and 16 have been amended.

In item 1 on page 2 of the above-identified Office action, the drawings have been objected to under 37 CFR 1.83(a) as not showing every feature of the invention specified in the claims.

More specifically, the Examiner has stated that the "second region of said first conductivity type" that is connected to the semiconductor region and the well terminal region in claims 5 and 17 must be shown or the feature(s) cancelled from the claim(s).

Figs. 5 and 6 clearly show that the second region (9) of the first conductivity type (N) is connected to the semiconductor region (2) and the well terminal region (7). Therefore, the Examiner is requested to withdraw the drawing objection.

In item 2 on page 3 of the above-identified Office action, the specification has been objected to as failing to provide proper antecedent basis for the claimed subject matter.

More specifically, the Examiner has stated that the specification does not refer to a "second region of said first conductivity type" as stated in claims 5 and 17.

It is described on page 5, lines 10-11 of the specification that additional N^+-doped (noting that N is the first conductivity type) regions 9 are provided at a few locations of the component. Therefore, the Examiner is requested to withdraw the specification objection.

In item 4 on pages 3-6 of the above-mentioned Office action, claims 1-23 have been rejected as being unpatentable over Tarabbia et al. (US 6,351,020 B1) in view of Manzini et al. (US 6,400,001 B1) under 35 U.S.C. § 103(a).

The rejection has been noted and claims 1 and 12-13 have been amended in an effort to even more clearly define the invention of the instant application. Support for the changes is found on page 23, lines 12-15 of the specification.

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Claims 1 and 12-13 call for, inter alia:

> said semiconductor region below said second insulating region under said gate electrode being linked to said region of said second conductivity type and thus to the reference-ground potential to improve a quality factor.

According to an aspect of an embodiment of the invention of the instant application, the region of a second conductivity type being linked to ground makes it possible to reduce the effective series resistance in a manner dependent on geometry and doping because the entire current does not flow through the series resistance of the capacitance, but rather in part through parasitic capacitances to the reference-ground potential (see page 23, line 23 to page 24, line 1 of the specification).

The Examiner has stated that Tarabbia et al. fail to disclose a highly-doped, second conductivity type region adjoining the semiconductor region and connected to a reference-ground potential. However, the Examiner has stated that Manzini et al. disclose a highly-doped, second conductivity type region 15a connected to a reference-ground potential Vp and touching each terminal region 5a.

Applicants respectfully disagree. The regions 15a, 15b in Fig. 2 of Manzini et al. are connected to a biasing voltage Vp. The biasing voltage Vp is different from ground. Manzini et al. teach that the voltage Vp of the charge extraction regions 15a, 15b must be lower than the voltage V_N (see column 2, lines 63-66) in order to guarantee that the PN junctions 16a and 16b, 17a and 17b are always inversely biased. Manzini et al. suggest having a voltage of -3 volts. For this reason, Manzini et al. do not teach connecting the region of the second conductivity type to ground, but instead to a biasing voltage to create inversely biased p-n junctions. This is done in Manzini et al. in order to achieve two effects, namely a more extensively variable capacity and an improved linearity (see column 3, lines 28-48).

Manzini et al. are silent not only on a connection of the second conductivity region to ground, but also on the effect of improving the quality factor by leading parasitic capacitance currents to ground.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either show or suggest the features of claims 1 and 12-13. Claims 1 and 12-13 are, therefore, believed to be patentable over the art and since all of the dependent claims are ultimately dependent on claims 1 or 13, they are believed to be patentable as well.

In view of the foregoing, reconsideration and allowance of claims 1-23 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel would appreciate a telephone call so that, if possible, patentable language can be worked out.

If an extension of time for this paper is required, petition for extension is herewith made. Please charge any fees which might be due with respect to 37 CFR Sections 1.16 and 1.17 to the Deposit Account of Lerner and Greenberg, P.A., No. 12-1099.

Respectfully submitted,

Yonghong Chen
Reg. No. 56,150

Yonghong Chen
For Applicants

YC

July 28, 2005

Lerner and Greenberg, P.A.
Post Office Box 2480
Hollywood, FL 33022-2480
Tel: (954) 925-1100
Fax: (954) 925-1101